2.0 INTRODUCTION

This monitoring proposal is submitted to fulfill the 120-day requirement for developing a coordinated shoreline monitoring plan for both the Dry-Weather and Wet-Weather Santa Monica Bay Beaches Bacteria Total Maximum Daily Loads (SMBBB TMDLs). These TMDL regulations can be found in Appendix K of this document as reference; or, they can be found on the Los Angeles Regional Water Quality Control Board's website at http://www.swrcb.ca.gov/rwqcb4/.

2.1 Background

Federal Regulations under the Clean Water Act require States to develop a list of impaired waters and the pollutants for which they are impaired, also known as the 303(d) List. The States must then establish what the assimilative capacity of the water body is for the impairing pollutants in the form of a Total Maximum Daily Load (TMDL) of the pollutant that the water body can receive and still achieve the water quality objectives necessary to protect its beneficial uses (e.g., REC-1). The sources must then reduce their discharges to meet these waste load allocations according to a compliance schedule. This Total Maximum Daily Load (TMDL) is incorporated as an amendment to the regional Water Quality Control Plan (Basin Plan).

The Santa Monica Bay beaches were designated as impaired and included on California's 1998 CWA §303(d) list of impaired waters due to excessive amounts of coliform bacteria. The presence of coliform bacteria in surface waters is an indicator that water quality may not be sufficient to maintain the beneficial use of these waters for human body contact recreation (REC-1). To allow more time to consider the extensive public comments on the wet-weather elements of the TMDL, the Regional Board staff decided to bifurcate the Santa Monica Bay Beaches Bacterial TMDL into two TMDLs, one for dry and one for wet weather.[1] Both the SMBBB dry- and wet-weather TMDLs were approved by EPA in June 2003 and became effective on July 15, 2003 with the following actions required:

- Both TMDLs require the responsible jurisdictions and responsible agencies to submit a coordinated, shoreline monitoring plan within 120 days of the effective date of the TMDLs.
- The Dry Weather TMDL further requires that within the same 120 days of the effective date the responsible jurisdictions and agencies identify and provide documentation on 342 potential discharges to Santa Monica Bay beaches, including those within the Area of Special Biological Significance in northern Santa Monica Bay from Latigo Point to the Los Angeles/Venture county line.

[1] See Appendix A Development History of SMBBB TMDL

- The TMDLs require responsible jurisdictions and agencies to achieve compliance with the TMDL according to specified schedules, with a longer schedule allowed for achieving the Wet Weather TMDL.
- The Wet Weather TMDL requires the responsible agencies and jurisdictions to develop an implementation plan for meeting the compliance schedule.
- Four years after the effective date of the TMDLs the Regional Board will re-consider the TMDLs, including certain provisions based on new data, some of which will be collected under this monitoring plan, including:

    - the number of allowable winter dry weather exceedance days
    - reevaluation of the reference system
    - reevaluation of the reference year
    - estimated number of wet-weather exceedance days in the critical year at all beach locations, including the reference system(s)
    - final allowable wet weather exceedance days for each beach location
    - reconsideration of whether the number of allowable wet weather exceedance days should be adjusted annually dependant on rainfall
    - the need for clarification or revision of the geometric mean compliance requirements

This monitoring proposal is submitted to fulfill the first of the above listed requirements, the coordinated shoreline monitoring plan for the SMBBB TMDLs to be submitted within 120 days of the effective date.

2.2 Compliance Targets

This Coordinated Shoreline Monitoring Plan proposes 67 locations where compliance with the TMDLs will be measured. Additionally, data collected prior to the compliance deadlines will be used when re-evaluating the TMDLs in four years. A brief discussion on how the Regional Board intends to measure the Responsible Agencies' compliance with the TMDLs' waste load allocations should help the reader to better understand the proposed monitoring program. Detailed information on the TMDLs requirements, including the waste load allocations, can be found in Appendix K.

The TMDLs establish multi-part numeric targets based on three bacteriological analytical parameters: Total coliform density, fecal coliform density and enterococcus density, with density reported in bacteria counts per 100 milliliters of water sampled. These numerical targets and the corresponding waste load allocations have been set based on the Los Angeles Basin Plan objectives for body-contact recreation (REC-1) along with the implementation provisions for these objectives.

The SMBBB TMDLs divide the year into three separate periods for compliance purposes, each with specific requirements. The three periods are as follows:

- summer dry-weather (April 1 – October 31),
- winter dry weather (November 1 – March 31), and
- wet weather.

Wet weather days are those days with rain events of ≥ 0.1 inches of precipitation and the three days following the end of the rain event.

2.2.1 Rolling 30-day Geometric Mean Limits

The Geometric Mean Limits may not be exceeded at any time and must be achieved within three (3) years of the effective date of the TMDL for summer dry weather, within six (6) years of the effective date for winter dry weather, and for wet weather the geometric mean limits must be achieved by the final compliance date in accordance with the implementation plan. These limits are:

- Total coliform density shall not exceed 1,000/100 mL
- Fecal coliform density shall not exceed 200/100 mL
- Enterococcus density shall not exceed 35/100 mL

The geometric mean is defined in Webster's Dictionary as "the n^{th} root of the product of n numbers." Thus, the 30-day geometric mean calculation for the SMBBB TMDLs will be calculated as the 30th root of the product of 30 numbers (the most recent 30 day results). For weekly sampling, the 30 numbers are obtained by assigning the weekly test result to the remaining days of the week. If more samples are tested within the same week, each test result will supersede the previous result and be assigned to the remaining days of the week until the next sample is collected. This rolling 30-day geometric mean must be calculated for each day, regardless of whether a weekly or daily schedule is selected.

2.2.2 Single Sample Limits

- Total coliform density shall not exceed 10,000/100 mL
- Fecal coliform density shall not exceed 400/100 mL
- Enterococcus density shall not exceed 104/100 mL
- Total coliform density shall not exceed 1,000/100 mL if the ratio of fecal-to-total coliform exceeds 0.1

During summer dry weather the single sample limits may not be exceeded at any time and must be achieved within three (3) years of the effective date of the TMDL.

The single sample targets for winter dry weather and year-round wet weather allow a certain number of exceedance days that are established using a dual *reference system/anti-degradation* approach. The allowable number of exceedance days at each monitoring site must be no greater than the number of historical exceedance days measured at a reference beach site that has been selected as being representative of natural background water quality from coastal creeks or runoff from undeveloped areas. *Because the bacterial indicators used as targets in the TMDL are not specific to human sewage, storm water runoff from undeveloped areas may also be a source of elevated bacterial indicator densities. For example, storm water runoff from natural areas may convey fecal matter from wildlife and birds or bacteria from soil. This is supported by the finding that, at the reference beach, the probability of exceedance of the single sample targets during wet weather is 0.22 (*i.e., 22%).[2] The reference system selected by the Regional Board is the Arroyo Sequit Canyon watershed and the corresponding historical monitoring site at Leo Cabrillo Beach.

The maximum allowable number of exceedance days per year based on the reference system during winter dry weather is three days per year based on a daily sampling schedule or one day per year based on weekly sampling.

The maximum allowable number of exceedance days based on the reference system during year-round wet weather is seventeen (17) exceedance days per year under a daily sampling schedule. If a weekly sampling schedule is employed, the number of allowable exceedance days is scaled back accordingly to three (3) exceedance days per year for year-round wet weather.

For compliance monitoring sites that exhibit historically *fewer* exceedance days than the reference beach site, there can be no degradation of water quality and for these compliance monitoring sites the allowable exceedance days will be set equal to the historical exceedance days at the same compliance monitoring site. In effect, certain compliance monitoring sites/watersheds are to be held to a higher standard than others per federal and state anti-degradation requirements.

2.3 Coordinated Monitoring Plan Development

This monitoring plan is developed by the Technical Steering Committee (TSC), which is co-chaired by the County and City of Los Angeles, and consists of representatives from all seven jurisdictional groups plus those responsible agencies within the Malibu Creek and Ballona Creek watersheds[3]. The Ballona Creek and

[2] Attachment A to Resolution No. 2002-022, page 4, Source Analysis

[3] Jurisdictional groups were not created for responsible jurisdictions and agencies in the Ballona Creek and Malibu Creek subwatersheds, because the Regional Board recognized that it would be premature to set interim compliance targets for beaches impacted by discharges originating within these watersheds in light of the fact that separate bacteria TMDLs would strongly affect implementation schedules for these beaches. Nevertheless, the responsible jurisdictions and agencies within these two watersheds are responsible under the SMBBB TMDLs (see letter from Dennis Dickerson, LARWQCB to responsible agencies dated October 28, 2003 for clarification). Therefore, these jurisdictions and agencies are also responsible for submitting a coordinated shoreline monitoring plan for those beaches

Malibu Creek watersheds are designated as Jurisdictional Groups 8 and 9, respectively, in this document for ease of reference.

The TSC originated as a subcommittee of the Ballona Creek Watershed Management Area municipal NPDES permittee group under the Los Angeles County Municipal Storm Water NPDES Permit. More than a year before the TMDLs were finalized, this subcommittee began gathering information and meeting with representatives of the various agencies that had historically conducted shoreline monitoring along the Santa Monica Bay beaches, namely the City of Los Angeles Environmental Monitoring Division (EMD), Los Angeles County Department of Health Services (LACDHS), and Los Angeles County Sanitation Districts (LACSD). The subcommittee met in May 2002 with representatives of the City of Los Angeles, the Los Angeles County Department of Public Works, and Caltrans to assess their plans for monitoring relative to the developing SMBBB TMDLs. The subcommittee held monthly meeting and gradually expanded to include representatives from all seven jurisdictional groups, and was renamed as the Technical Steering Committee for the SMBBB TMDLs. Once the TMDLs were approved by the U.S. EPA in June 2003, RWQCB staff and environmental stakeholder representatives began attending TSC meetings to provide feedback as work on the coordinated monitoring plan progressed. A list of participants in the TSC is provided in Appendix N.

2.4 Requirements of Coordinated Shoreline Monitoring Plan

Both the Dry and Wet Weather TMDLs require that within 120 days of the effective date:

> *"Responsible jurisdictions and responsible agencies must submit coordinated shoreline monitoring plan(s), including a list of new sites and/or sites relocated to the wave wash at which time responsible jurisdictions and responsible agencies will select between daily and weekly shoreline sampling*[4]*. Monitoring sites are those shoreline locations currently monitored by the City of Los Angeles* [EMD]*, County Sanitation Districts of Los Angeles County [LACSD], and the Los Angeles County Department of Health Services [LACDHS] at the time of adoption of this TMDL by the Regional Board.*[5]*"*

The three above-mentioned agencies currently conduct routine monitoring at fifty (50) shoreline locations in Santa Monica Bay[6]. Additionally, the TMDLs also require additional monitoring sites:

---

and associated compliance monitoring locations that are primarily impacted by discharges originating within the Ballona Creek and Malibu Creek watersheds.

[4] Resolution 2002-004, Attachment A, Table 7-4.3, Resolution 2002-022, Table 7-4.7

[5] Resolution 2002-022, Attachment A, Table 7-4.6, footnote ***

[6] Resolution 2002-022, Attachment A, Table 7-4.6

> "*For those subwatersheds without an existing shoreline monitoring site, responsible jurisdictions and agencies must establish a shoreline monitoring site if there is measurable flow from a creek or publicly owned storm drain to the beach during dry weather*[7]."

This last sentence is further clarified by the additional statement that responsible jurisdictions and agencies "*shall conduct daily or systematic weekly sampling in the wave wash at all major drains and creeks or at existing monitoring sites at beaches without storm drains or freshwater outlets*.[8]"

The term *wave wash* is defined as the point at which the storm drain or creek empties and the effluent from the storm drain initially mixes with the receiving ocean water, this term is also referred to as "*point zero."* *Major drains* are described in the Wet Weather TMDL as those that are *publicly owned and have measurable flow to the beach during dry weather*[9]. See Appendix K for more details on the TMDLs' requirements for the monitoring plan.

[7] Resolution 2002-022, Attachment A, Table 7-4.7
[8] Resolution 2002-022, Attachment A, page 9, Compliance Monitoring
[9] Resolution 2002-022, Attachment A, page 9, Compliance Monitoring, footnote 7